

# ESTIMATION OF THE SEVERITY OF MITRAL REGURGITATION BY PARAMETERS DERIVED FROM THE VELOCITY PROFILE OF PULMONARY VENOUS FLOW USING TRANSESOPHAGEAL DOPPLER TECHNIQUE

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To determine whether parameters of the velocity profile of pulmonary venous (PV) flow are useful for the assessment of mitral regurgitation, 29 Pats with MR were studied by transesophageal Doppler echocardiography (TEDE) and left ventricular angiography. TEDE recordings of 20 healthy adults served as control data. PV flow in normals was characterized by a triphasic forward flow velocity pattern with retrograde flow only during atrial contraction, whereas in all Pats with MR, flow reversal (v) was also present during systole. No significant differences were found for the amplitude between peak velocity of systolic forward flow (x') and v as well as the downslope from x' to v in Pats with MR as compared to the control group. Comparison with angiographically determined severity of MR revealed a close correlation for v (Spearman  $r=.84$ ) and a slightly weaker correlation for the ratio  $v/x'$  ( $r=.80$ ), whereas no significant relationship was found for the time interval between Q wave in ECG and x' divided by the corresponding RR interval. With the use of .30 m/s as an upper threshold for v, detection of grade III and IV of MR was achieved with high diagnostic accuracy.

We conclude, that PV flow in MR as registered by TEDE demonstrates a systolic retrograde component and that parameters derived from the velocity profile enable semi-quantitative estimation of the severity of the lesion.

# TRANSESOPHAGEAL ECHOCARDIOGRAPHIC GUIDANCE DURING PERCUTANEOUS LASER MYOPLASTY FOR HYPERTROPHIC CARDIOMYOPATHY: RESULTS OF A CANINE TRIAL

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While transesophageal echocardiography (TEE) has been employed for intra-operative monitoring, limited experience has been reported with TEE as an adjunct to percutaneous interventions. Accordingly, we investigated TEE to position a 200µm optical fiber (OF)/8Fr. guiding catheter (GC) delivery system developed for percutaneous laser (L) myoplasty (M) treatment of hypertrophic cardiomyopathy (HCM). The OF/GC was advanced retrograde from femoral artery (n=6), or antegrade (transseptal) from femoral vein (n=4), to the left ventricle (LV) under fluoroscopy. TEE was then used to position OF/GC tip at pre-determined LV endocardial (E) site by TEE. OF was then interfaced with a Nd:YAG L. Adequate OF/LVE contact was established at low L power (<5 watts) by absence of micro-cavitations during TEE imaging. If OF/LVE contact appeared inadequate, OF was repositioned by TEE. L power was then increased (10-18 watts) until TEE showed intense echogenicity of irradiated site. L exposure was continued (up to 6 min) until TEE showed reduced wall motion of irradiated site. Animals were then sacrificed and pathologic alteration at irradiated sites confirmed. In contrast to previous experience with closed-chest echo, TEE freed technician from entry into fluoroscopic gantry. In 1 dog with dextrocardia, TEE guided trans-septal puncture. TEE thus constitutes useful guidance system for percutaneous IM and may prove valuable as adjunct to alternative interventions.

# LONGTERM TRANSESOPHAGEAL ECHOCARDIOGRAPHIC FOLLOW-UP OF INTERATRIAL SHUNTING AND MITRAL REGURGITATION AFTER BALLOON MITRAL VALVULOPLASTY

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To determine the long-term prognosis of interatrial shunting (IAS) and mitral regurgitation (MR) after percutaneous mitral valvuloplasty (PMV), we performed transesophageal echocardiography immediately after PMV and after a mean of 10 months (range 4-17) in 19 pts. MR was visually quantified on a 5 point scale pending the jet extent in the LA.

Results:	immediately after PMV	10 months after PMV
IAS	19/19	1/19
MR	12/19	6/19
grade 0	7	13
1	6	3
2	3	1
3	3	2*
4	0	0

In all but 2 pts\* MR at 10 months was less (> 1 grade). Mean IAS jet length immediately after PMV was 1.6 cm (range 0.5-5) and in the one pt present at 10 months 4 cm.

We conclude that following PMV

- 1) IAS usually disappears
- 2) mild MR (grade 1,2) usually disappears or reduces and grade 3 MR usually remains present
- 3) MR did not increase in any pt.

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Poster Displayed: 9:00AM-12:00NOON

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Hall C, New Orleans Convention Center  
Myocardial and Pericardial Disease

# HEMODYNAMIC EFFECTS OF INTRAVENOUS AMIODARONE IN HYPERTROPHIC CARDIOMYOPATHY

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Efficiency of amiodarone (A) in ventricular arrhythmias of patients (pts) with hypertrophic cardiomyopathy (HCM) has been emphasized long ago but there are very few data on hemodynamic effects of A in HCM.

Ten patients, aged 27-66 (mean 52), with clinical and echocardiographic criteria of HCM (no pt with basal gradient) were studied during heart catheterization. Heart rate (HR) (beats/min), cardiac index (CI) l/min/m<sup>2</sup>, left ventricular (LV) systolic gradient after isoproterenol (LVGI) (mmHg), end diastolic LV pressure (EDLVP) (mmHg), max dp/dt (mmHg/s), T (time constant of LV pressure fall) (ms), and systemic vascular resistance (SVR) (dyn. s cm<sup>5</sup>/m<sup>2</sup>) were measured before (a) and 15 mn. after the end of intravenous (IV) injection of A (b), with a dosage of 5 mg/kg/mn.

	HR	CI	EDLVP	LVGI	maxdp/dt	T	SVR
a	70±12	2.7±0.7	26±6	61±31	1505±378	76±1	1715±596
b	72±10	2.5±0.6	24±7	28±20	1210±274	78±2	1814±641
p	NS	NS	NS	=0.001	=0.0006	NS	NS

Thus, despite slight negative inotropic effect and unchanged SVR and relaxation, there was no significant change of CI and EDLVP. Furthermore, obstruction under isoproterenol decreased very significantly. It is concluded that A decreases provoked obstruction, possibly by depressing contractility, in HCM.